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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/785,152	02/24/2004	Takashi Nagase	47434-00066	8157
7590 07/02/2007				
Douglas N. Larson		EXAMINER		
Squire, Sanders & Dempsey, L.L.P.		ABOAGYE, MICHAEL		
14th Floor				
801 S. Figueroa Street		ART UNIT		
Los Angeles, CA 90017		PAPER NUMBER		
		1725		
		MAIL DATE		
		DELIVERY MODE		
		07/02/2007		
		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/785,152	Applicant(s) NAGASE ET AL.	
	Examiner Michael Aboagye	Art Unit 1725	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 June 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 99-150 is/are pending in the application.
- 4a) Of the above claim(s) 137-150 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 99-139 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 99-150 are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 February 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☒ Certified copies of the priority documents have been received in Application No. 10/719,001.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>See Continuation Sheet</u> . | 6) <input type="checkbox"/> Other: _____ |

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date
:3/2/06;1/5/06;6/3/05;4/29/05;1/27/05;12/21/04.

DETAILED ACTION

Election/Restrictions

1. Applicants' election without traverse of Group I (Claims 99-136) in the reply filed on June 07, 2007 is acknowledged.

Title of Invention

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: "A Method of Soldering Iron Tip With Metal Particle Sintered Member Connected to Heat Conducting Core."

Drawings

3. The drawings are objected to because the rearwardly opening cavity 109, as described in the specification paragraph [0310] is not shown in FIG. 1. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement-drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency.

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Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

4. The disclosure is objected to because of the following informalities: update the status of U.S. Application Serial No. 10/719,001, filed in November 21, 2003 as U.S. Patent No. 7,030,339. Appropriate correction is required.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6 Claims 99,111-114,116,117,133,135 and 136 are rejected under 35 U.S.C. 102(b) as being anticipated by Weller (US Patent No. 5,553,767).

Regarding claims 99,112, 113 and 114, Weller teaches a method of forming a soldering iron tip, comprising: providing a copper or copper alloy core having a base portion (32, figure 3) and a forward extension portion which has longitudinal through-

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passage way (34 of figure 3 and 36 of figure 4), the forward tip portion having a tip end (see the tapered end of 36 of figure 4); applying Ag particles to at least one of an inside surface of a solder tip cap and the forward tip portion; and after the applying, fitting the solder tip cap on the forward tip portion; and after the fitting, brazing the cap to the forward tip portion (column 4, lines 25-31 and lines 47-51, note this cited portion, recites that the forward portion and the base portion are bonder together by a variety of methods including soldering, welding, or sintering using silver; the examiner interprets broad recitation of metal fusion bonding to include brazing, furthermore bonding by sintering technique implies that the silver bonding medium is in particulate form. It is therefore the position of the examiner that the limitations as claimed in 99 and 114 are met by the disclosure of Weller).

Regarding claim 116, Weller teaches forming copper/iron compact composite by die or injection molding followed by heat treatment in a hydrogen atmosphere (column 5, lines 54-58).

Regarding claims 111, 117 and 136, Weller teaches iron cap (column 1, lines 22-23).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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8. Claims 105, 119-124 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weller (US Patent No. 5,553,767) as applied to claims 99 and 114 above and further in view of Nippert (US Patent No. 4,345,136).

Weller does not expressly teach a brazing filler metal ring.

However Nippert teaches brazing two parts (the tip member (31) and the billet (43), figure 5) of a composite electrode member, wherein at least one parts is made of copper; applying silver brazing ring (49, figure 5) therebetween so that a protrusion (45, figure 5) and a recess (49, figure 5) mate, and heating so that the two parts are brazed together (Nippert, abstract, column 5, lines 51-68); wherein the joint so formed is sufficiently strong to substantially withstand distortion during subsequent application (Nippert, column 6, lines 33-36). Furthermore, figures 5 and 6 show, mounting the ring before the inserting; the ring abutting the surface of the extension member (51); wherein the abutment surface extends out perpendicular to a longitudinal axis of the extension member (see the vertical matching between the parts (31,43) and the ring (49), also abutment surface extends out an angle from a longitudinal axis of the extension member away from the forward tip. (see the angle portions of the part (32) and the angled through passageway of parts (34,36) in figures 5 and 6).

It would have been obvious to one of ordinary skill in the art at the time the applicants' invention was made to apply silver brazing ring to braze the elements of soldering iron tip of Weller as taught by Nippert in order to form a tight hermetic seal and also a strong bond that can withstand distortion (Nippert, column 6, lines 33-36).

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123. The method of claim 121 wherein the abutment surface extends out an angle from a longitudinal axis of the extension member away from the forward tip.

9. Claims 103,104,107-110, and 125-134 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weller (US Patent No. 5,553,767) as applied to claims 99 and 114 above and further in view of Steine at al. (US Patent No. 4,052,531).

Weller does not expressly teach applying flux in the brazing process, reducing or inert furnace atmosphere, heating to brazing temperature of 700 degrees, flux made of AWS 3A type or AWS 3B type flux.

However Steine at al. teaches furnace brazing metal parts using a silver brazing filler (abstract, column 2, lines 38-45), applying flux made of AWS 3A type or AWS 3B type flux (column 1, lines 33-38); heating to brazing temperature of about 700 degrees (column 1, lines 33-38) in an inert or reducing atmosphere using gases selected from nitrogen, hydrogen and Ar gas (Steine at al., column 1, lines 45-49). Steine at al. also teaches applying both the flux and the filler in a paste form (Steine at al. column 1, lines 20-25). Regarding the brazing time the examiner believes since the same brazing furnace atmosphere and conditions as well as same brazing filler and flux material are been used in Steine at al.'s process as applicant's the brazing time would necessarily be substantially the same. Hence the time limitation as claimed in claim 129 is met.

It would have been obvious to one of ordinary skill in the art at the time the applicants' invention was made to use flux and an inert or reducing atmosphere in the process of Weller as taught by Steine at al. to inhibit the formation of oxide film and also

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to promote flow and bonding of the filler metal throughout the joint being brazed (Steine at al., column 1, lines 19-31).

10. Claim 106 is rejected under 35 U.S.C. 103(a) as being unpatentable over Weller (US Patent No. 5,553,767) as applied to claim 99 above and further in view of Nippert (US Patent No. 4,345,136) and Pietrocini et al. (US Patent No. 3,894,678).

Weller and Nippert do not expressly teach filler made of BAg-7.

However Pietrocini et al. teaches brazing sintered iron articles applying a brazing filler between the faying surfaces of the articles and furnace heating to bond the articles together; wherein the filler material is made of BAg-7 (Pietrocini et al., abstract, column 2, lines 11-23, column 4, lines 16-25 and lines 41-48 and table; wherein said brazing filler could be in paste, liquid or powder form (i.e. particulate form); wherein said filler material provides improved braze joint (Pietrocini et al., column 1, lines 60-65).

It would have been obvious to one of ordinary skill in the art at the time the applicants' invention was made to use filler made of BAg-7 in the combined invention of

Weller and Nippert as taught by Pietrocini et al., in order to form strong bond between brazed elements or parts (Pietrocini et al., column 1, lines 60-65).

11. Claims 100 and 102 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weller (US Patent No. 5,553,767) as applied to claims 99 above and further in view of Davis et al. (US Patent No. 4,995,921).

Weller does not expressly teach applying alcohol a vehicle in the brazing filler.

However Davis et al. teaches applying alcohol as a vehicle in the brazing filler

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(paste or powder); applying filler by screen printing which necessarily could involve a squeegee or brushing (Davis et al., column 3, lines 15-20) wherein addition of alcohol improves the solubility or organic fluxing agent blend in the filler, improves viscosity, reduce the amount of solvent addition to the filler and eliminates residue forming compounds (Davis et al., column 1, lines 11-22, column 2, lines 62-68 and column 5, lines 13-22).

It would have been obvious to one of ordinary skill in the art at the time the applicants' invention was made to use alcohol as a vehicle in the brazing filler of Weller as taught by Davis et al. to improve viscosity, reduce the amount of solvent addition to the filler and eliminate residue forming compounds (Davis et al., column 1, lines 11-22, column 2, lines 62-68 and column 5, lines 13-22).

12. Claims 101 and 118 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weller (US Patent No. 5,553,767) as applied to claims 99 and 114 above and further in view of Rhoads et al. (US Patent No. 3,006,069).

Weller does not expressly teach the particle size of the silver brazing filler material.

However Rhoads et al. teaches a silver filler material of particles size up to 50 micron for brazing or soldering metal articles and ceramic articles; wherein said finer particle size range is preferred for achieving better seal result (Rhoads et al., figures 1-5, column 1, lines 22-30, column 3, lines 16-25, column 4, lines 36-45)

It would have been obvious to one of ordinary skill in the art at the time the applicants' invention was made to use silver filler material of particles size up to 50

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micron in the method of Weller as taught by Rhoads et al. in order to achieve better seal at the joint interface between the brazed elements or parts (Rhoads et al., column 3, lines 16-25).

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ebata (US 4,974,768) and Kleeberg (US 3,899,114) are also cited in PTO-892.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Aboagye whose telephone number is 571-272-8165. The examiner can normally be reached on Mon - Fri 8:30am - 5pm.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jonathan Johnson can be reached on 571-272-1177. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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06/24/2007